



CMMI version 1.3

How agile is CMMI?

A small poll

- Who uses CMMI without Agile?
- Who uses Agile without CMMI?
- Who combines both?
- Who is interested in SCAMPI?

Agenda

- Big Picture of CMMI changes
- Details for some PA's
- A new perspective on processes

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The Big Picture

- Lots of small textual improvements
- Introduction of Agile interpretation boxes
- Changes in High Maturity

High Maturity - Core

Version 1.2

VER CL5

... added GP5.1 (ensure improvement) and GP5.2 (root causes)

VER CL4

objectives) and GP4.2 (stabilize)

VER CL3

tailored process

VER CL2

institutionalised with 10 GP's

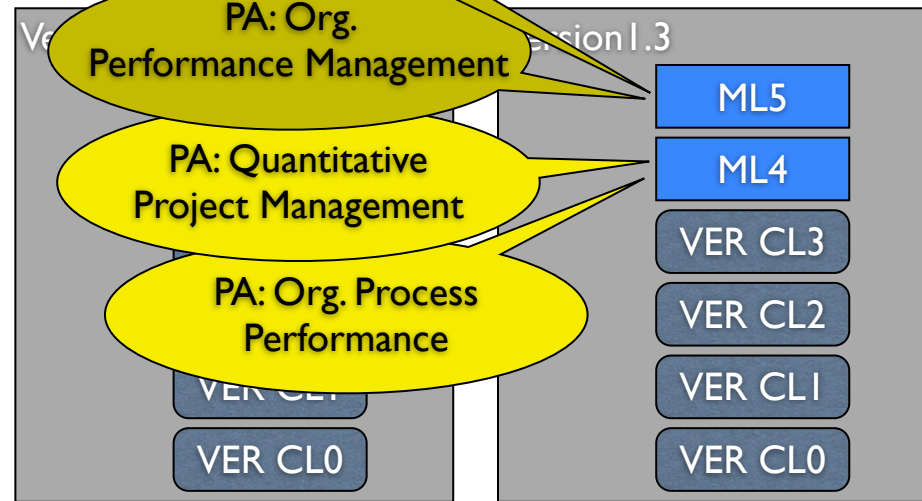
VER CL1

practices

VER CL0

practices

Continuous Maturity -



High Maturity - new PA

Organisational Performance Management
instead of ~~Organisational Innovation and
Deployment~~

OPM Purpose

[1.2] The purpose of Organizational Innovation and Deployment (OID) is to select and deploy incremental and innovative improvements that measurably improve the organization's **processes and technologies**. The improvements support the organization's quality and process- performance objectives as derived from the organization's business objectives.

[1.3] The purpose of Organizational Performance Management (OPM) is to proactively manage the organization's **performance** to meet its business objectives.

OPM Specific Practices

SG 1 Manage Business Performance

- SP 1.1 Maintain Business Objectives
- SP 1.2 Analyze Process Performance Data
- SP 1.3 Identify Potential Areas for Improvement

SG 2 Select Improvements

- SP 2.1 ~~Collect and Analyze Improvement Proposals~~ Elicit Suggested Improvements
- SP 2.2 ~~Identify and Analyze Innovations~~ Analyze Suggested Improvements
- SP 2.3 ~~Pilot Improvements~~ Validate Improvements
- SP 2.4 Select ~~and Implement~~ Improvements for Deployment

SG 3 Deploy Improvements

- SP 3.1 Plan the Deployment
- SP 3.2 Manage the Deployment
- SP 3.3 ~~Measure~~ Evaluate Improvement Effects

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SAM

SP 2.1 Execute the supplier agreement

~~SP 2.2 Monitor selected supplier processes~~

~~SP 2.3 Evaluate selected supplier work products~~

SP 2.4 Accept the acquired product

SP 2.5 Transition products

Measures for each PA?¹_{of}

GP2.8

all examples contain a measurement, so apparently measurements are needed

Appropriate visibility into the process is maintained so that appropriate corrective action can be taken when necessary. Monitoring and controlling the process can involve measuring appropriate attributes of the process or work products produced by the process.”

GP3.2

Collect work products, measures, measurement results, and improvement information derived from planning and performing the process to support the future use and improvement of the organization's processes and process assets

Collect process related experiences derived from planning and performing the process to support the future use and improvement of the organization's processes and process assets

Measurement objectives

Table MA.1: Example Measurement Relationships

Example Project, Organizational, or Business Objectives	Information Need	Measurement Objective	Measurement Information Categories	Example Base Measures	Example Derived Measures
Shorten time to delivery Be first to market the product	What is the estimated delivery time?	Provide insight into schedule fluctuations and progress	Schedule and progress	Estimated and actual start and end dates by task	Milestone performance Percentage of project on time Schedule estimation accuracy
Increase market share by reducing costs of products and services	How accurate are the size and cost estimates?	Provide insight into actual size and costs compared to plan	Size and effort	Estimated and actual effort and size	Productivity
			Effort and cost	Estimated and actual cost	Cost performance Cost variance
Deliver specified functionality	Has scope or project size grown?	Provide insight into actual size compared to plan, identify unplanned growth	Size and stability	Requirements count	Requirements volatility Size estimation accuracy
				Function point count	Estimated vs. actual function points
				Lines of code count	Amount of new, modified, and reused code
Reduce defects in	Where are	Evaluate the	Quality	Number of defects	Defect containment by

Glossary

	1.2	1.3
Process	activities that can be recognized as implementations of practices in a CMMI model	A set of interrelated activities, which transform inputs into outputs, to achieve a given purpose.
Project	a managed set of interrelated resources which delivers one or more products to a customer or end user. A project has a definite beginning (i.e., project startup) and typically operates according to a plan.	A managed set of interrelated activities and resources, including people, that delivers one or more products or services to a customer or end user. A project has an intended beginning (i.e., project startup) and end . Projects typically operate according to a plan.

Agile box - REQM

In Agile environments, requirements are communicated and tracked through mechanisms such as product backlogs, story cards, and screen mock-ups. Commitments to requirements are either made collectively by the team or an empowered team leader. Work assignments are regularly (e.g., daily, weekly) adjusted based on progress made and as an improved understanding of the requirements and solution emerge. Traceability and consistency across requirements and work products is addressed through the mechanisms already mentioned as well as during start-of-iteration or end-of-iteration activities such as "retrospectives" and "demo days." (See "Interpreting CMMI When Using Agile Approaches" in Part I.)

Agile box - RSKM

In Agile environments, some risk management activities are inherently embedded in the Agile method used. For example, some technical risks can be addressed by encouraging experimentation (early "failures") or by executing a "spike" outside of the routine iteration. However, the Risk Management process area encourages a more systematic approach to managing risks, both technical and non-technical. Such an approach can be integrated into Agile's typical iteration and meeting rhythms; more specifically, during iteration planning, task estimating, and acceptance of tasks. (See "Interpreting CMMI When Using Agile Approaches" in Part I.)

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Engineering or Production?

Manufacturing has long recognized the importance of process effectiveness and efficiency. Today, many organizations in manufacturing and service industries recognize the importance of quality processes.

from: CMMI version 1.3 (and 1.2)

What is engineering?

At the heart of the engineering approach is a separation of design and construction, where construction is the larger part of the job and is a predictable process. Over time I began to find that this separation wasn't really useful for my software work.

Martin Fowler's foreword in Ken Schwaber's - Agile Software Development with Scrum

Process control ^(1/2)

There are two approaches to controlling any process.

The “defined” process control model requires that every piece of work be completely understood. Given a well-defined set of inputs, the same outputs are generated every time.

A defined process can be started and allowed to run until completion, with the same results over time

Process control ^(2/2)

There are two approaches to controlling any process.

The “empirical” process control model expects the unexpected. It provides and exercises control through frequent inspection and adaptation for processes that are imperfectly defined

Ken Schwaber - Agile Software Development with Scrum (referring to Tunde)

Is CMMI really agile?

Multiple Agile approaches exist. The phrases “Agile environment” and “Agile method” are shorthand for any development or management approach that adheres to the Manifesto for Agile Development [Beck 2001].

Such approaches are characterized by the following:

- Direct involvement of the customer in product development
- Use of multiple development iterations to learn about and evolve the product
- Customer willingness to share in the responsibility for decisions and risk

from CMMI 1.3

Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions **over** processes and tools

Working software **over** comprehensive documentation

Customer collaboration **over** contract negotiation

Responding to change **over** following a plan

That is, while there is value in the items on the right, we value the items on the left more.

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Manifesto brengt spirit in Scrum. Infusion.

Processen en tools zijn prima, maar we zijn, door teveel focus hierop, wel eens vergeten dat software ontwikkeld wordt door vakmensen, en dat zij echt met elkaar in gesprek moeten gaan.

Documentatie is belangrijk, maar werkende software nog meer. Bij traditionele milestones werd alleen maar papier opgeleverd.

Onderzoek naar re-use van software heeft aangetoond dat documentatie over designs maar een heel beperkt nut heeft. Alleen praten met de oorspronkelijke ontwikkelaars over het idee achter het design, en discussie met hen over waar een uitbreiding het beste geplaatst kon worden leidt tot een efficiënt ontwerp.

Voorbeeld Wittgenstein – beschrijf een stoel, beschrijf het geluid van een klarinet.

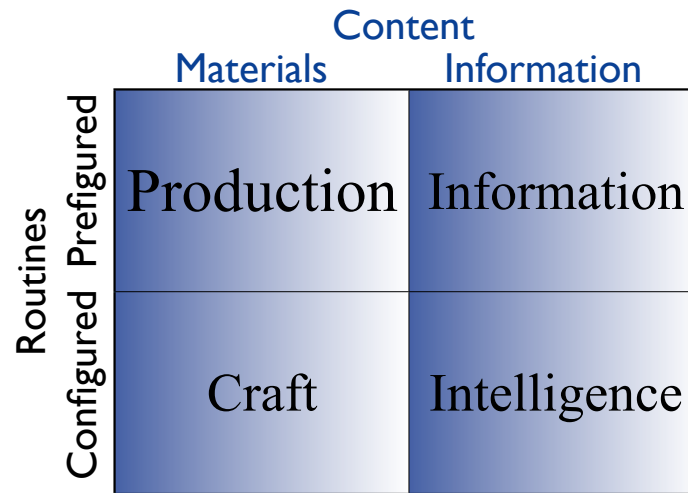
In contracten met KPI's kan alles dichtgetimmerd worden, waardoor het contract belangrijker wordt dan het tevredenstellen van de klant. Angstcultuur, afrekencultuur zijn het gevolg.

Wees realistisch, in vrijwel elk project zal er verandering komen. En dat is goed. Voortschrijdend inzicht van de klant (ik wil eigenlijk iets anders) of van de ontwikkelaars (we weten een slimme manier) is alleen maar goed. Krampachtig vasthouden aan het oude plan is dan stompzinig.

Agile or CMMI?

- Wrong question!
- The real question:
 - How prescriptive should processes be?
 - The answer depends on:
 - the Nickols areas
 - the Cynefin areas

Types of Work



From: Fred Nickols

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Prefigured – vooraf helemaal uitgedacht. Medewerkers moeten door COMPLIANCE de processen gewoon volgen

Configured – uitgewerkt op de werkvloer (obv basis elementen). Medewerkers hebben een CONTRIBUTION rol

Examples:

- Production – manufacturing line
- Craft – meubelmaker, kleermaker, programmeur
- Information – administratief werk, schade voor verzekering beoordelen, salarisadministratie, lening afsluiten, business processes
- Intelligence – ontwerper, project manager, consultant

Characteristics of type of work

Adapted from: Fred Nickols

	Production	Craft	Information	Intelligence
Work Content	Materials	Materials	Information	Information
Work Process	Prefigured	Configured	Prefigured	Configured
Work Result	Tangible Product	Tangible Product	Intangible	Intangible
Chief measures	Volume & Quality	Quality & Value	Volume & Quality	Quality & Value
Means of control	Compliance to procedures and standards	Adherence to good practice (professionalism)	Compliance to procedures and standards	Adherence to good practice (professionalism)
Locus of control	Management	Worker	Management	Worker

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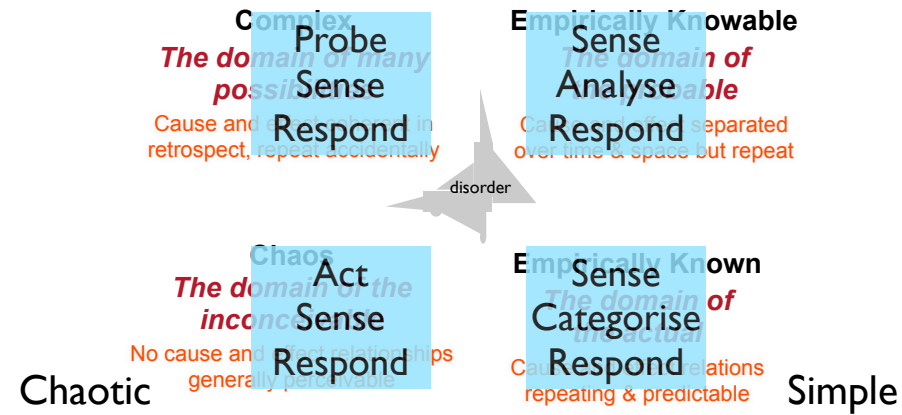
compliance(the ~) als in `compliantness`:
 volgzzaamheid (de ~ (v)), meegaandheid (de ~ (v))

adhere - iets aankleven

Cynefin

Complex

Complicated



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So, what's next?

- Analyse your processes
 - Simple, Complicated, Complex, Chaotic
 - Information, Intelligence
- Rewrite process descriptions accordingly
- Manage process accordingly

More info

- <http://www.improvementfocus.com/pages/nl/publicaties/artikelen-en-presentaties.php>
- <http://www.processgroup.com/pgpostnov10.pdf>
- <http://www.sei.cmu.edu/cmmi/tools/cmmiv1-3/index.cfm>
- <http://en.wikipedia.org/wiki/Cynefin>